

CLAIM AMENDMENTS

The following listing of claim amendments replaces all prior versions and listings.

1.-95. (Canceled)

96. (Currently Amended) A server for storing Web objects in co-located positions on a storage device, comprising:  
a processor;  
one or more stored sequences of instructions which, when executed by the processor,  
cause the processor to perform the steps of:  
receiving, at a server from a first client device, a first request for a first Web object;  
in response to the first request,  
the server obtaining the first Web object and a second Web object; and  
the server sending to the first client device the first Web object and the second Web object;  
the server causing the first Web object to be stored in a first temporary location on the storage device;  
the server causing the second Web object to be stored in a second temporary location on the storage device,  
wherein the storage device is included in the server;  
wherein the server is a Web caching server;  
the server identifying that the second Web object is embedded within the first Web object;  
determining that a criterion is satisfied, wherein the criterion is satisfied when the Web caching server is processing a number of requests that is below a specified value;  
based on a criterion being satisfied,

the server causing the first Web object to be stored as a first file in a first storage location on the storage device, wherein causing the first Web object to be stored as a first file comprises the server causing the first Web object to be moved from the first temporary location to the first storage location; and

the server causing the second Web object to be stored as a second file in a second storage location on the storage device, wherein causing the second Web object to be stored as a second file comprises the server causing the second Web object to be moved from the second temporary location to the second storage location;

wherein the second storage location is selected to be co-located with respect to the first storage location in response to identifying that the second Web object is embedded within the first Web object;

receiving, at the server from a second client device, a second request for the first Web object; and

in response to the second request,

the server obtaining the first Web object by causing the first file to be read from the storage device in a first read operation;

the server obtaining the second Web object by causing the second file to be read from the storage device in a second read operation; and

the server sending to the second client device the first Web object and the second Web object.

97. (Currently Amended) A server as recited in Claim 96, wherein:
- the first storage location is co-located with respect to the second storage location on the storage device because the first storage location and second storage location are associated with a relationship; and
- the relationship is selected from the group consisting of:
- (a) the first storage location and the second storage location are located within a first track of the storage device;

- (b) the first storage location is within a first sector of a second track of the storage device, the second storage location is within a second sector of the second track of the storage device, and the first sector is contiguous with the second sector;
- (c) the first storage location is within a third track of the storage device, the second storage location is within a fourth track of the storage device, and the third track is adjacent to the fourth track;
- (d) the first storage location is within a first cylinder of the storage device, the second storage location is within a second cylinder of the storage device, and the first cylinder is adjacent to the second cylinder;
- (e) the first storage location and the second storage location are located within a third cylinder of the storage device; and
- (f) the first storage location is within a fourth cylinder of the storage device, the second storage location is within a fifth cylinder of the storage device, and the fourth cylinder is closely spaced with respect to the fifth cylinder.

98. (Canceled)

99. (Previously Presented) A server as recited in Claim 96, wherein:  
the first Web object is a Web page;  
the second Web object is a component of the Web page;  
the component of the Web page is associated with a file type that is selected from the group consisting of a text file type, an image file type, an audio file type, and a video file type; and  
the Web page and the component of the Web page have correlated retrieval times as a result of the component of the Web page being embedded within the Web page.

100. (Previously Presented) A server as recited in Claim 96, wherein:  
the first Web object is a Web page;  
the Web page includes a hyper-link to the second Web object; and

the Web page and the second Web object have correlated retrieval times as a result of the Web page including the hyper-link to second Web object.

101. (Previously Presented) A server as recited in Claim 96, wherein:  
the first Web object is a first Web page;  
the second Web object is a second Web page; and  
the first Web page and the second Web page have correlated retrieval times as a result of the second Web page being embedded within the first Web page.
102. (Currently Amended) A server as recited in Claim 96, wherein:  
the first Web object is a first Web page;  
the second Web object is a second Web page; and  
the server further comprising sequences of instructions which, when executed by the processor, cause the processor to perform the steps of:  
the server identifying that a third Web page is embedded within the second Web page;  
the server obtaining the third Web page; and  
the server causing the third Web page to be stored as a third file in a third storage location on the storage device, wherein the third storage location is selected to be co-located with respect to the second storage location because the third Web page is embedded within the second Web page.
- 103 - 109. (Canceled)
110. (Currently Amended) An apparatus for storing Web objects in co-located positions on a storage device, comprising:  
means for receiving, at a server from a first client device, a first request for a first Web object;  
means for, in response to the first request,  
the server obtaining the first Web object and a second Web object; and

the server sending to the first client device the first Web object and the second Web object;

means for the server causing the first Web object to be stored in a first temporary

location on the storage device;

means for the server causing the second Web object to be stored in a second temporary

location on the storage device,

wherein the storage device is included in the server;

wherein the server is a Web caching server;

means for the server identifying that the second Web object is embedded within the first Web object;

means for determining that a criterion is satisfied, wherein the criterion is satisfied

when the Web caching server is processing a number of requests that is below a specified value;

means for, based on a criterion being satisfied,

~~means for the server causing the first Web object to be stored as a first file in a first storage location on the storage device, wherein causing the first Web object to be stored as a first file comprises the server causing the first Web object to be moved from the first temporary location to the first storage location; and~~

~~means for the server causing the second Web object to be stored as a second file in a second storage location on the storage device, wherein causing the second Web object to be stored as a second file comprises the server causing the second Web object to be moved from the second temporary location to the second storage location;~~

wherein the second storage location is selected to be co-located with respect to the first storage location in response to identifying that the second Web object is embedded within the first Web object;

means for receiving, at the server from a second client device, a second request for the first Web object; and

means for, in response to the second request,

the server obtaining the first Web object by causing the first file to be read  
from the storage device in a first read operation;  
the server obtaining the second Web object by causing the second file to be  
read from the storage device in a second read operation; and  
the server sending to the second client device the first Web object and the  
second Web object.

111. (Currently Amended) An apparatus as recited in Claim 110, wherein:  
the first storage location is co-located with respect to the second storage location on  
the storage device because the first storage location and second storage  
location are associated with a relationship; and  
the relationship is selected from the group consisting of:
- (a) the first storage location and the second storage location are located within  
a first track of the storage device;
  - (b) the first storage location is within a first sector of a second track of the  
storage device, the second storage location is within a second sector of  
the second track of the storage device, and the first sector is contiguous  
with the second sector;
  - (c) the first storage location is within a third track of the storage device, the  
second storage location is within a fourth track of the storage device,  
and the third track is adjacent to the fourth track;
  - (d) the first storage location is within a first cylinder of the storage device, the  
second storage location is within a second cylinder of the storage  
device, and the first cylinder is adjacent to the second cylinder;
  - (e) the first storage location and the second location are located within a third  
cylinder of the storage device; and
  - (f) the first storage location is within a fourth cylinder of the storage device,  
the second storage location is within a fifth cylinder of the storage  
device, and the fourth cylinder is closely spaced with respect to the fifth  
cylinder.

112. (Canceled)

113. (Previously Presented) An apparatus as recited in Claim 110, wherein:  
the first Web object is a Web page;  
the second Web object is a component of the Web page;  
the component of the Web page is associated with a file type that is selected from the  
group consisting of a text file type, an image file type, an audio file type, and a  
video file type; and  
the Web page and the component of the Web page have correlated retrieval times as a  
result of the component of the Web page being embedded within the Web  
page.
114. (Previously Presented) An apparatus as recited in Claim 110, wherein:  
the first Web object is a Web page;  
the Web page includes a hyper-link to the second Web object; and  
the Web page and the second Web object have correlated retrieval times as a result of  
the Web page including the hyper-link to second Web object.
115. (Previously Presented) An apparatus as recited in Claim 110, wherein:  
the first Web object is a first Web page;  
the second Web object is a second Web page; and  
the first Web page and the second Web page have correlated retrieval times as a result  
of the second Web page being embedded within the first Web page.
116. (Currently Amended) An apparatus as recited in Claim 110, wherein:  
the first Web object is a first Web page;  
the second Web object is a second Web page; and  
the apparatus further comprises:  
means for the server identifying that a third Web page is embedded within the  
second Web page;  
means for the server obtaining the third Web page; and

means for the server causing the third Web page to be stored as a third file in a third storage location on the storage device, wherein the third storage location is selected to be co-located with respect to the second storage location because the third Web page is embedded within the second Web page.

117 - 123. (Canceled)

124. (Currently Amended) A computer-readable storage medium carrying one or more sequences of instructions for storing Web objects in co-located positions on a storage device, which instructions, when executed by one or more processors, cause the one or more processors to perform the steps of:  
receiving, at a server from a first client device, a first request for a first Web object;  
in response to the first request,  
the server obtaining the first Web object and a second Web object; and  
the server sending to the first client device the first Web object and the second Web object;  
the server causing the first Web object to be stored in a first temporary location on the storage device;  
the server causing the second Web object to be stored in a second temporary location on the storage device,  
wherein the storage device is included in the server;  
wherein the server is a Web caching server;  
the server identifying that the second Web object is embedded within the first Web object;  
determining that a criterion is satisfied, wherein the criterion is satisfied when the Web caching server is processing a number of requests that is below a specified value;  
based on a criterion being satisfied,



the server causing the first Web object to be stored as a first file in a first storage location on the storage device, wherein causing the first Web object to be stored as a first file comprises the server causing the first Web object to be moved from the first temporary location to the first storage location; and

the server causing the second Web object to be stored as a second file in a second storage location on the storage device, wherein causing the second Web object to be stored as a second file comprises the server causing the second Web object to be moved from the second temporary location to the second storage location;

wherein the second storage location is selected to be co-located with respect to the first storage location in response to identifying that the second Web object is embedded within the first Web object;

receiving, at the server from a second client device, a second request for the first Web object; and

in response to the second request,

the server obtaining the first Web object by causing the first file to be read from the storage device in a first read operation;

the server obtaining the second Web object by causing the second file to be read from the storage device in a second read operation; and

the server sending to the second client device the first Web object and the second Web object.

125. (Currently Amended) A computer-readable storage medium as recited in Claim 124, wherein:

the first storage location is co-located with respect to the second storage location on the storage device because the first storage location and second storage location are associated with a relationship; and

the relationship is selected from the group consisting of:

(a) the first storage location and the second storage location are located within a first track of the storage device;

- (b) the first storage location is within a first sector of a second track of the storage device, the second storage location is within a second sector of the second track of the storage device, and the first sector is contiguous with the second sector;
- (c) the first storage location is within a third track of the storage device, the second storage location is within a fourth track of the storage device, and the third track is adjacent to the fourth track;
- (d) the first storage location is within a first cylinder of the storage device, the second storage location is within a second cylinder of the storage device, and the first cylinder is adjacent to the second cylinder;
- (e) the first storage location and the second storage location are located within a third cylinder of the storage device; and
- (f) the first storage location is within a fourth cylinder of the storage device, the second storage location is within a fifth cylinder of the storage device, and the fourth cylinder is closely spaced with respect to the fifth cylinder.

126. (Canceled)

127. (Previously Presented) A computer-readable storage medium as recited in Claim 124, wherein:
- the first Web object is a Web page;
  - the second Web object is a component of the Web page;
  - the component of the Web page is associated with a file type that is selected from the group consisting of a text file type, an image file type, an audio file type, and a video file type; and
  - the Web page and the component of the Web page have correlated retrieval times as a result of the component of the Web page being embedded within the Web page.

128. (Previously Presented) A computer-readable storage medium as recited in Claim 124, wherein:  
the first Web object is a Web page;  
the Web page includes a hyper-link to the second Web object; and  
the Web page and the second Web object have correlated retrieval times as a result of the Web page including the hyper-link to second Web object.
129. (Previously Presented) A computer-readable storage medium as recited in Claim 124, wherein:  
the first Web object is a first Web page;  
the second Web object is a second Web page; and  
the first Web page and the second Web page have correlated retrieval times as a result of the second Web page being embedded within the first Web page.
130. (Currently Amended) A computer-readable storage medium as recited in Claim 124, wherein:  
the first Web object is a first Web page;  
the second Web object is a second Web page; and  
the computer-readable storage medium further comprises instructions which, when executed by the one or more processors, cause the one or more processors to perform the steps of:  
the server identifying that a third Web page is embedded within the second Web page;  
the server obtaining the third Web page; and  
the server causing the third Web page to be stored as a third file in a third storage location on the storage device, wherein the third storage location is selected to be co-located with respect to the second storage location because the third Web page is embedded within the second Web page.

131 - 137. (Canceled)

138. (Currently Amended) A method for storing Web objects in co-located positions on a storage device, comprising:
- receiving, at a server from a first client device, a first request for a first Web object;
- in response to the first request,
- the server obtaining the first Web object and a second Web object; and
- the server sending to the first client device the first Web object and the second Web object;
- the server causing the first Web object to be stored in a first temporary location on the storage device;
- the server causing the second Web object to be stored in a second temporary location on the storage device,
- wherein the storage device is included in the server;
- wherein the server is a Web caching server;
- the server identifying that the second Web object is embedded within the first Web object;
- determining that a criterion is satisfied, wherein the criterion is satisfied when the Web caching server is processing a number of requests that is below a specified value;
- based on a criterion being satisfied,
- the server causing the first Web object to be stored as a first file in a first storage location on the storage device, wherein causing the first Web object to be stored as a first file comprises the server causing the first Web object to be moved from the first temporary location to the first storage location; and
- the server causing the second Web object to be stored as a second file in a second storage location on the storage device, wherein causing the second Web object to be stored as a second file comprises the server causing the second Web object to be moved from the second temporary location to the second storage location;

wherein the second storage location is selected to be co-located with respect to  
the first storage location in response to identifying that the second Web  
object is embedded within the first Web object;  
receiving, at the server from a second client device, a second request for the first Web  
object; and  
in response to the second request,  
the server obtaining the first Web object by causing the first file to be read  
from the storage device in a first read operation;  
the server obtaining the second Web object by causing the second file to be  
read from the storage device in a second read operation; and  
the server sending to the second client device the first Web object and the  
second Web object.

139 - 141. (Canceled)